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with the studies. Visitors who wish to see the work of the school will find the studios open each day from nine until twelve in the morning, and from one until four in the afternoon. The free classes are taught from half-past seven to half-past nine, Monday, Tuesday, and Wednesday evenings of each week.

EMMA MOFFETT TYNG.

RIO DE JANEIRO LETTER.

THE scientific movement of Brazil can afford but little matter of interest to the outside world. Within the last few years a few isolated workers have succeeded in making their names known beyond the limits of the country, but for the present they are too few to have established any noteworthy centres of scientific thought, either in the way of societies or periodicals. Outside of the medical profession, which maintains a very creditable society and one or two special journals, the spirit of association has taken the direction mainly of organizing geographical societies, of which Rio de Janeiro boasts of three,—the old and highly reputable though decidedly fossilized Historical, geographical, and ethnological institute, the more recent Rio de Janeiro section of the Lisbon geographical society, and the Rio de Janeiro geographical society. Each publishes its review, mainly valuable on account of the insertion and discussion of old and little-known documents, recent contributions of importance rarely appearing. This abundance of geographical societies is not due to a superabundance of active workers, but to a sudden outburst of enthusiasm and fraternal good feeling, awakened by a visit from the Portuguese explorer of Africa, Major Serpa Pinto. On this occasion Brazilians and Portuguese united in founding a section of the Lisbon society to commemorate his visit. National rivalries soon appeared, however, and led to the withdrawal of a portion of the Brazilian element to found the Rio de Janeiro society, which, of the three, appears at present to possess the most vitality and promise of usefulness.

The other scientific publications are the *Archivos do museu nacional*, of which six volumes have been issued, containing articles on archeology, anthropology, zoölogy, and geology, contributed mainly by the officers of the museum; the *Annals da Escola de minas de Auro Preto*, of which the four volumes published are mainly devoted to metallurgy and mineralogy; and the recently established monthly *Revista do observatorio*, which is taking a very useful direction in the collection of meteorological observations from various points of the empire. Private enterprise in the publication of scientific journals has taken the direction

of technical reviews for engineers and architects, of which three are published. In the absence of other organs, articles of general science are sometimes inserted in these, particularly in the oldest and best established of them, the *Revista de engenharia*. The last number of the *Archivos do museu*, issued near the end of last year, contained profusely illustrated articles on the extraordinary ornamented pottery of the mounds of Marajo. The next volume, to be issued shortly, will be devoted to a memoir by Dr. C. A. White of Washington, on the Brazilian cretaceous fossils, and will undoubtedly be the most important contribution ever made to South American invertebrate paleontology.

Since the beginning of the present year, three official commissions have been organized, from which results of some value may be expected, and of which notice has already been given in *Science*. The first in point of time is for a geographical and geological survey of the province of San Paulo, on the plan of the U. S. surveys of the territories, under the charge of Prof. O. A. Derby of the national museum. The first work undertaken was the exploration of the second largest river of the province, the Paranapanema, tributary of the Parana. The party, consisting of Dr. Theodoro Sampaio, geographer, with Dr. J. W. Aguiar as assistant, and Dr. Paula Oliveira geologist, embarked on the upper river May 22, and has only just returned, having traversed about 900 kilometres of difficult river in a sparsely populated, almost desert region, and about 500 kilometres by land, all in a region that had never before been scientifically examined. The river was found to be full of dangerous falls and rapids in its middle section, of the extension of about 120 kilometres, but comparatively free from obstruction in an upper section of 200 kilometres, and a lower section of 309 kilometres. The latter section promises to become an important link in the system of internal communications with the distant province of Matto Grosso. For over half its course, the river flows through a region of bedded traps, presumably of triassic age. The chief of the commission has been engaged in the examination of a remarkable development of nepheline sienites, occurring in several points of the province, and in such intimate association with typical volcanic rocks, tuffs, phonolites, trachites, nepheline, leucite, and olivine basalts, as to establish the volcanic character of the whole group. The passage of nepheline sienite to phonolite is clearly demonstrated, and leucite rocks are reported for the first time in South America.

A second commission, appointed by the minister of agriculture, is for a study of the disease of

the coffee-plant, that during the past few years has destroyed a large number of plantations over a considerable area in the northern part of the province of Rio de Janeiro. This is intrusted to Dr. Emil Göldi, an able and energetic young Swiss naturalist, who has recently been appointed sub-director of the zoölogical section of the national museum. Dr. Göldi has been in the field for the last two months, studying the disease *in situ*, but as yet has not made public any of his results. A valuable biological contribution may be confidently expected from this commission.

A third commission, headed by Dr. J. B. Lacerda, well known through his researches on snake-poison and on beriberi, is about to proceed to the northern provinces of Pará and Maranhão to study the disease beriberi, which is extending rapidly over the north of the empire, and is beginning to appear to an alarming extent in the south as well. The last steamer to New York takes the president of the chamber of deputies, who is making a sea-voyage in the hope of throwing off the disease; and a prominent physician of Rio, who was appointed on the beriberi commission, has been obliged to resign on account of having become a sufferer from it. As has already been noticed in *Science*, Dr. Lacerda attributes the disease to a microbe, a conclusion which has been confirmed by Dr. Ogata Masanori of Tokio, in Japan. Up to the present time, elements for the study of beriberi have been rather difficult to obtain in Rio, and the present study in the principal centres of the disease will undoubtedly add greatly to our knowledge on the subject. Dr. Lacerda has also been investigating a very similar disease of horses, very prevalent in the provinces of Pará and Matto Grosso, known as *peste da Cadeiras*, or hip-evil, which at one time he was inclined to identify with the beriberi; but he has recently discovered some well-marked differences in the micro-organisms characteristic of the two.

Considerable interest has been manifested among medical men in the proposed American commission to study Dr. Frere's yellow-fever investigations, and methods of inoculation. The work of Dr. Frere seems to have awakened a more lively interest abroad than here. The official support that he received as president of the board of health has been withdrawn since his retirement from that post, on account of his commendable, though perhaps not always judicious, efforts to suppress the powerful industry of manufactured wines, while the general attitude of the medical profession is that of extreme reserve. While he has a number of very fervent followers, a number of prominent physicians have vigorously combated

his conclusions. As few, if any, of his critics, are practised microscopists, he has been able to meet their scientific arguments quite successfully, but has been less fortunate in the defence of his statistics regarding the immunity of inoculated persons. Like all Brazilian statistics, these are too loosely drawn to inspire confidence. A large proportion of the inoculated has been among the shifting population, whose subsequent history can only be followed with difficulty; and Frere is accused of not admitting that the disease is yellow-fever, in the case of the death of an inoculated person, no matter what the opinion of the attending physician may be.

The National museum has recently received several interesting additions. The veteran paleontologist of Buenos Ayres, Dr. Hermann Burmeister, made it a present of a very perfect skeleton of *Scelidotherium*, and added greatly to the value of his gift by coming in person to superintend the mounting of it. Although in his eightieth year, Dr. Burmeister is still vigorous, and looks able to continue his work for several years yet. While in Rio, he received many attentions from the emperor and imperial family, and found himself obliged rather reluctantly to accept from the emperor the decoration of dignitary of the order of the rose, which is next to the highest rank of the order, and one seldom conferred. The museum has also received a fragment, weighing nearly two kilograms, of the famous Bendigo or Bahia meteorite, the second largest mass of native iron known; and hopes are entertained of obtaining the entire mass, which is estimated to weigh about nine tons, and lies about sixty miles away from a recently constructed line of railroad. A wealthy gentleman of Bahia is inquiring into the feasibility of transporting it with the intention of placing it in the museum if it be found practicable. The latest addition is a perfect skeleton of a whale, apparently *Balaena australis*, measuring about fifteen metres in length, which was stranded a few weeks ago in a little bay to the south of Rio.

Dr. Barbosa Rodriguez, director of the museum of Manaos, province of Amazonas, has just announced the rediscovery of *Lepidosiren*, of which no specimens have been found since the time of Natterer and Castelnau, and whose existence in South America has recently been put in doubt. It may now be confidently expected that specimens of this rare and interesting animal can be obtained in large numbers.

Y. A.

Rio de Janeiro, Oct. 15.

M. C. GUYOT, professor in the School of forestry at Nancy, is preparing an important work on 'Les forêts lorraines jusqu'en 1789.'